assuredly bring trouble to the patient, and perplexity to the practitioner; while at the outset, a few wholesome directions, with an efficient remedy, will check the tendency to mischief, and perhaps save the patient's life. When once it becomes what I have attempted to describe in the preceding pages, I know of nothing so disgusting to the sufferer, or so intractable and trying to the patience and skill of the medical attendant.

ART. III.—*On Typhlitis and Peri-Typhlitis; or, Diseases of the Cæcum and Appendix resulting in Abscess in the Right Iliac Fossa.* By ROBERTS BARTHOLOW, M. D., Lecturer on Clinical Medicine and Physician to St. John's Hospital, Cincinnati, etc. etc.

IT is not my purpose to consider simple inflammation of the cæcum, or that impaction of this organ which, evidenced by pain and swelling in the right iliac region, disappears more or less promptly under appropriate treatment. The special condition, the object of inquiry in this paper, is that disease, either of the cæcum, appendix, or peri-cæcal tissue which ends in the formation of an abscess in the right iliac region.

This disease has been described under various designations, as follows: Typhlitis, Tuphlo-Enteritis, Peri-Typhlitis, Cæcitis, Cæcal Abscess, Lumbar Abscess, Fecal Abscess of Iliac Fossa, etc. These terms are, of course, not synonymous; neither do they accurately express in every case the pathological condition, but rather some pronounced feature in the morbid process. Cases of this disease having, within the past year, occurred under my observation, I have been at some pains to look up the literature of the subject. Although the information is not so meagre as I had supposed before commencing my researches, it is scattered through so many periodicals that it may be useful to collect what is known into a group for more convenient study and analysis.

The best account of the diseases of the cæcum which has been published in our language is unquestionably that of Dr. Copland in his *Dictionary of Pract. Med.* This learned and indefatigable author, as his note on the bibliography and references sufficiently exhibits, neglected no source of information. In Dupuytren's *Leçons Orales de Clinique Chirurgicale faites à l'Hôtel Dieu de Paris*, etc., there is an excellent lecture on abscess in the right iliac fossa, of which Copland and subsequent writers have made liberal use. One of the most valuable monographs on the subject of Typhlitis or "Tuphlo-Enteritis," is that by Dr. John Burne, Physician to Westminster Hospital. His first paper on this disease was read before the Royal Medical and Chirurgical Society on

the 27th of November, 1838, and was published in Vol. XX. of that Society's Transactions. This was followed by another paper on the same subject, the next year. These papers appear not to have received the attention which their merits deserve. For instance, Habershon merely alludes to them in the preface to his work On the Alimentary Canal as "a valuable paper." Previous to the publication of Dr. Burne's paper, Mr. Ferrall had described in the *Edinburgh Journal* several forms of this disease, and in the *Dublin Journal* for March and May, 1839, is an account of the morbid anatomy of a case observed by him. In the *American Cyclopedia of Practical Medicine*, vol. i. p. 80, there is an excellent *résumé* of existing knowledge on the subject of Typhlitis. A very carefully considered article is also to be found in the *Western Lancet*, vol. vii., 1848, by Dr. Hanbury Smith, who refers to a treatise on the subject by Volz, of Carlsruhe, an author whose labours have not attracted the attention of any English writer upon the disease. A short account of the anomalies of position and the diseases of the cæcum and appendix is given in vol. ii. of *Rokitansky's Pathological Anatomy*, but it is by no means a satisfactory treatment of the subject. Also, in *Wilks' Pathological Anatomy*, p. 299, there is a brief statement of observations upon intestinal concretions and abscess of the iliac fossa. In the *London Lancet*, vol. i., 1860, there is a short and incomplete article on tuphlo-enteritis, based upon some cases reported from the London hospitals. No allusion has thus far been made to the elaborate *Handbuch der Speciellen Pathologie und Therapie*, which contains in the volume devoted to diseases of the chylopoietic viscera by Prof. Bamberger, of Wurzburg, a very full chapter on Typhlitis and Peri-Typhlitis (pp. 329–45). The subject is more exhaustively treated by this author than by any other. Prof. Bamberger has not omitted inquiry into the English contributions to the same subject, and has availed himself of the labours of Ferrall, Copland, and Burne.

In general, the references to this subject in the systematic works on medicine are meagre and unsatisfactory. The article in Copland's Dictionary is the most complete. Wood does not enter into the consideration of typhlitis with any degree of particularity, and Aitkin does little more than allude to it. Flint, in his recent excellent work on the Practice of Medicine, has not omitted mention of this disease, and gives in a few sentences much valuable information. Finally, Habershon, in his work On the Alimentary Canal, has devoted a chapter to the cæcum and its diseases. Reports of cases, and observations upon them are quite numerously scattered throughout the medical periodicals of the last thirty years. The most interesting and important of them will be introduced when they may serve to determine a question.

The occurrence of an abscess in the right iliac region, communicating with the bowel, may, for our present purpose, be considered due to, 1,

ulceration and perforation of the cæcum; 2, ulceration and perforation of the appendix; and 3, inflammation and suppuration of the sub-cæcal connective tissue.

I. ULCERATION AND PERFORATION OF THE CÆCUM occurs under two conditions: *a*, the irritation of an extraneous body; *b*, perforating ulcer of the cæcum.

a. Ulceration of the cæcum produced by some extraneous substance is, probably, more frequent than is generally supposed. The anatomical position and structure of the cæcum favours the lodgment of foreign bodies. It has, it will be remembered, a sacculated arrangement, due to the fact that the longitudinal fibres are collected into three bundles, which are much shorter than the mucous membrane. This arrangement permits an extraordinary increase in size when the fecal matters accumulate, but in the state of ordinary distension these sacculi and folds of the mucous membrane may retain particles of undigested food, fruit-stones, intestinal concretions, etc. As the cæcum is bound down more or less closely by the sub-cæcal connective tissue, and by the peritoneum, the motion of this intestine is very limited, and hence foreign bodies lodged in the folds of the mucous membrane are less readily detached than in other parts of the intestinal tract. From similar causes, lodgment of extraneous bodies, followed by ulceration and abscess, may occur in the sigmoid flexure of the colon, an instance of which happened in my wards at St. John's Hospital, last winter. Volz, of Carlsruhe, according to Dr. Hanbury Smith,[1] thinks intestinal concretions, of which he describes three varieties, the "*soft*," the "*semi-hard*," and the "*stony*," play an important part in the production of the ulcerative inflammation. The first "resemble excrement in appearance and odour, and have a nucleus of hardened fecal matter;" the second "have a sausage form, with pointed ends, are of a grayish-brown colour, and consist of shining concrete layers, with a nucleus in the centre, which is not a foreign body;" and the third are "of a grayish-white or earthy colour, and a surface whence may be detached delicate scales, or else of a smooth, shining, yellowish white or brown surface, studded with calcareous projections." Most of these intestinal concretions consist of carbonate and phosphate of lime, united with inspissated mucus. Copland alludes to one consisting of cholesterine. In the museum of Guy's Hospital, says Habershon, there is a large calculus, the size of a hen's egg, which was removed from a sinus leading from the parietes of the abdomen to the cæcum. These intestinal concretions are much less apt to lodge in the cæcum than are such foreign bodies as cherry and grape-seeds, and various indigestible substances of a similar irritant character. In the appendix, however, any substance not acted on by the intestinal juices may lodge, especially if the cæcum be distended with feces.

[1] Western Lancet, 1848, vol. vii. p. 134 et seq.

The foreign body, whatever may be its nature, lodges in the folds of the mucous membrane in the posterior part of the cæcum—for the direction impressed upon the fecal matters in their passage through the ileo-cæcal valve is from before backward. Having obtained foothold, the body excites ulceration of the mucous membrane, perforation takes place, and some fecal matter with the foreign body escapes into the sub-cæcal connective tissue. Inflammation then occurs in this connective tissue (*cellulitis*), manifested by some constitutional disturbance, but especially by tumefaction in the right iliac and lumbar regions, by pain down the inner face of the thigh, by hectic, sweats, discharge of matter, &c.

It is to be observed that, in these cases, the first symptom is due to perforation followed quickly by acute inflammation of the sub-cæcal tissue. Peritonitis is not an accident of this condition of things, for the reason that the portion of the bowel perforated has no peritoneal covering. Symptoms are not observed—or, are very obscure—until the inflammatory process takes place in the sub-cæcal tissue, because, indeed, the ulceration is confined to the limited space occupied by the foreign body, and does not involve loss of function of the organ.

For particulars of two cases of this form of ulceration and perforation of the cæcum, I am indebted to my friend Dr. Geo. Fries, of this city, whose good fortune in meeting with strange and difficult cases is only equalled by his skill in the management of them.

CASE I. When this young man presented himself to Dr. Fries, the whole anterior wall of the abdomen appeared to be a mass of disease. Numerous sinuses extended downward into the iliac regions of both sides, on the dorsum of the penis, and into the scrotum. The discharge had the fecal odour, and was very offensive. The sinuses were freely laid open. Three grape seeds were subsequently discharged from an opening in the right groin. Complete recovery ensued.

CASE II. This was a female, a patient of Dr. Fries. A swelling had for some time existed in the right iliac region. It was at first mistaken by the physicians who examined it for enlarged ovary. Suppuration occurred, the abscess was opened by Dr. Fries, and a *Lima bean* was discharged. This patient also recovered promptly after the discharge of the extraneous body.

Dr. Gurdon Buck, of New York, in the course of some observations on deep-seated abscesses, made before the New York Pathological Society,[1] gave a case of abscess "produced by a foreign body which had made its way from the cæcum, and set up inflammation posteriorly in the fossa of that side. The foreign body afterwards presented itself in an opening in the groin which had previously been made for the evacuation of matter, and proved to be a pin which was extensively incrusted. That patient—a male—ultimately recovered."

[1] New York Medical Journal, October, 1865.

I have collected other cases of the same character, but the history of them is not material to the present inquiry. Of thirty-two cases of fecal abscess, the origin of which was distinctly ascertained, in six the abscess was due to the presence of an extraneous body, producing ulceration and perforation of the cæcum.

b. The production of abscess by perforation of the intestinal coats by ulceration (cæcitis?) is a more common accident than the preceding. It is a form of disease not unfrequently met with in the interior portion of this continent.

In respect to severity of symptoms and gravity of results, perforation of the cæcum by ulceration may be divided into two classes: 1. Those in which the perforating ulcer is situated in the posterior part of the bowel; and, 2. Those in which the perforation involves the peritoneal covering. The symptoms of the second variety are not to be distinguished from those of ulceration and perforation of the *appendix vermiformis*. In a large majority of cases, the perforating ulcer selects the posterior part of the gut. Of fourteen cases, in two only did the ulcer involve that part of the bowel covered by the peritoneum.

The symptoms of perforating ulcer are these: Pain is felt in the right iliac region and tenderness to pressure exists. There are apt to be, also, more or less abdominal pain and uneasiness; disturbance of the bowels with dysenteric symptoms, and some impairment of the general health. These evidences of disease may continue for many weeks without attracting much attention, until a sudden increase of uneasiness in the right iliac region, and the development of a tumour in that locality, demand interference. The tumour develops itself downward to the outer half of Poupart's ligament, and upward and backward along the crest of the ilium to the posterior superior spinous process. Although I would not presume to deny the fact asserted by some writers that acute cæcitis may terminate by ulceration and perforation of the coats of the bowel, yet all my observations go to prove the existence of a characteristic form of disease, which I have ventured to denominate "the perforating ulcer of the cæcum." In the cases examined by me, the tubular glands of the cæcum, which are large and distinct, were the seat of ulcerative action, the intervening mucous membrane being comparatively healthy. The ulcer, when fairly established, is round, with smooth, even edges, slightly elevated above the surrounding tissue. It preserves these characters throughout. The distinctiveness and urgency of the symptoms will depend upon the number of ulcers in the cæcum; the progress of the case will be much influenced by the state of the vital powers; in a low and enfeebled state of the general organism the ulceration proceeds more rapidly. When perforation takes place, the sudden increase in pain is generally referred by the patient to a blow upon the part, or a strain, or some unusual position of the body; but these accidents only promote the giving way of the last portion of tissue

already in a state of slough. All of the attendant phenomena will be better exhibited by some illustrative cases.

CASE III. Mrs. M——, æt. 46, the mother of five children, after some months' of suffering from an intestinal disease, dysenteric in character, began to have pains of a very excruciating character in right hip. Soon after she observed a swelling in the right iliac region. This swelling was accompanied with pain down the thigh in the course of the crural nerve. She maintained the thigh flexed upon the pelvis and the trunk inclined forward and to the right. This position was assumed, obviously, to relax the abdominal muscles and prevent pressure upon the tumour, which was very sensitive to the touch. The swelling increased in size, pushing upward to the inferior border of the liver, and bulging outward over the crest of the ilium and extending backward to the posterior superior spinous process. She experienced hectic and profuse perspirations, and became very much exhausted, so that her life was despaired of. The abscess finally pointed just below and opposite the middle of the crest of the ilium. A quantity of offensive gas and matter escaped; but meanwhile several sudden and profuse discharges of pus took place from the rectum. She finally recovered completely.

CASE IV. Mrs. K——, æt. 25, Newport, Ky. She had suffered for nine months frequent attacks of diarrhœa, with abdominal pain and soreness, especially in the right iliac region. A swelling gradually developed itself in this situation. The pain became very acute, so that she could not bear the slightest manipulation of the tumour, although the abdomen in every other situation was soft and free from tenderness. As in the preceding case, much pain existed along the inner face of the thigh, and was acute in the knee. She carried her body much forward and to the right, and the thigh flexed upon the pelvis. She had, soon after the appearance of the tumour, daily paroxysms of fever and exhausting night-sweats, which were mistaken for a quotidian intermittent. When I saw her, in consultation, there was a firm, hard swelling in the right iliac region, not quite reaching to Poupart's ligament, extending above the crest of the ilium, which it overlapped, and reaching backward to the lumbar vertebræ. An obscure sense of fluctuation was perceived in the most prominent part of the swelling. Her catamenia were regular. She was much exhausted, had but little appetite, and suffered from occasional attacks of diarrhœa. After one of these attacks the tumour subsided very sensibly. Under the use of mineral acids and quinia, and chlorodyne to relieve the pain, she improved, and was at length able to go on a considerable journey to join her husband.

CASE V. (Dr. Fries.) A female. Symptoms same as in foregoing cases: a swelling in right iliac region extending above crest of ilium to lumbar region. Finally discharge of matter at posterior superior spinous process; discharge of fecal matter for nine months, when orifice closed and complete recovery ensued.

When the ulcer perforates that part of the intestine having a peritoneal covering, the symptoms and results are much graver than in the cases just detailed. When the perforation takes place, the symptoms of peritonitis declare themselves so suddenly and characteristically as to leave no room for doubting the nature of the accident. In one instance (Case VI.) which

has fallen under my observation, the symptoms of peritonitis were not so pronounced as I have described them. Generally, when the perforation takes place, we observe those provisions of nature to limit the ill effects. The peritonitis is circumscribed, adhesion takes place between the omentum and intestines in the neighbourhood, and the abdominal wall, and following the usual law, the pus seeks an outlet externally. These conservative efforts, unfortunately, usually fail. Sometimes, instead of the local, we have a general peritonitis, with all of its disastrous consequences, as in the following case:—

CASE VI. Was a female about eighteen years of age, who had suffered under some obscure abdominal trouble with diarrhœa. During the progress of the case, she was suddenly attacked with severe abdominal pain and tenderness, but no considerable depression of the vital powers. She died two weeks after this sudden increase in the gravity of her symptoms, but without giving satisfactory evidence of the serious lesions discovered after death. I found, on post-mortem examination, a round, smooth ulcer of the size of a silver dime, which had perforated the cæcum on its anterior part; general peritonitis existed, the intestines and pelvic organs being glued together so that they could not be separated without tearing the former, and the cavity contained forty ounces of very fetid sero-purulent fluid.

A very instructive case is reported by W. Sly, Esq., Assistant Surgeon Second Batt. 16th Regiment, in the *Statistical, Sanitary and Medical Reports of the British Army for* 1859 (p. 290).

This was a soldier æt. 30, "of strumous diathesis and delicate aspect." "On the 29th of June, after making a hearty meal, he walked quickly over the curragh, and on stooping low, in order to pass under a fence, he suddenly felt intense pain in the right iliac region. * * * In a few days, when he was able to bear manipulation, I discovered a tumour as large as the closed fist between the ilium and umbilicus, which I diagnosed as peri-cæcal abscess. * * * * On the 7th of July I opened an ischiatic abscess, which discharged freely up to the date of the man's death." At the autopsy were found "two ulcers in the cæcum, one of which communicated with a cavity formed by the adhesion of omentum to the parietes of the abdomen in front and behind. The pus which formerly filled this cavity must have escaped into the bowel through the enlarged ulcerated opening, for the abscess was nearly emptied."

Mr. Ferrall (*Dublin Journal*, 1839[1]) has described a case similar to the last.

A young girl was admitted to the Meath Hospital with a tumour in the right iliac region about fourteen days after the first attack; suppuration of the tumour had then occurred; the bursting of the abscess was soon indicated by a copious discharge of purulent matter from the bowels; soon after this another tumour formed in the upper part of the thigh, separated from the former by a deep sulcus corresponding to Poupart's ligament. The latter opened and discharged pus and ultimately fecal

[1] American Journal of the Medical Sciences, vol. xxv. p. 188.

matter. Mr. Ferrall exhibited to the *Dublin Pathological Society* the parts, showing the mode of communication between the abscess and the opening in the groin.

II. ULCERATION AND PERFORATION OF THE APPENDIX.—In a collection of eighteen cases, unequivocally produced by extraneous bodies, I find that the appendix was the seat of ulceration and perforation in twelve cases. There have been very opposite opinions expressed on this point. Mr. Ferrall assumed that the cæcum was the original seat of ulceration in iliac abscess, and joined issue with Dr. Burne, who had attempted to establish that the appendix was usually first diseased, the discharge of pus taking place through a subsequent perforation of the cæcum. Dr. Burne also excepted to the doctrine of Dupuytren (*Leçons Orales*, &c.) and of Menière, who held that the disease was in the cæcum only. Dr. Burne's analysis includes twenty-one cases, of which eleven were simple inflammation of the cæcum. Excluding the latter as not pertinent to our present inquiry, we have a total of ten cases, of which "two were chronic disease of cæcum; six were instances of perforation of the appendix, five being fatal; one was perforation of the cæcum from within and recovered; one was inflammation of the appendix with peritonitis, and was fatal." Dr. Hanbury Smith also regards ulceration and perforation of the appendix as the principal source of abscess in the iliac fossa. Habershon (*op. cit.*, p. 169) remarks that "ulceration and perforation of the intestine are much more frequently found associated with disease of the appendix than with ulceration of the cæcum itself." He reiterates this opinion in his remarks on tumours of the abdomen in Volume XI. of *Guy's Hospital Reports*.

Ulceration and perforation of the appendix may be due to simple inflammation and abscess, of which I have met but a single instance in a large number of autopsical examinations, or to lodgment of intestinal concretions, or other extraneous bodies. Three-fourths of the cases are produced by the latter accident. By what cause soever produced, there will follow perforation of the appendix, a local or general peritonitis. The symptoms, always pronounced, will vary accordingly. Both classes of cases are very fatal, but the latter are more fatal than the former. When the matters escape, and even before, during the progress of the disease in the appendix, adhesions take place so as frequently to shut off the greater part of the cavity from the local inflammatory action. It is in these latter cases only that abscess makes its way outward through the iliac and femoral regions. The same phenomena, precisely, occur in the case of perforating ulcer of the cæcum involving the peritoneal coat. An interesting case behaving in this way, but which terminated fatally, is related by Habershon, in Volume XI. *Guy's Hospital Reports*, 1865, p. 192. "The disease originated in the appendix and set up inflammation in the adjoining

cellular tissue; suppuration and abscess followed," the abscess opening below Poupart's ligament.

III. INFLAMMATION AND SUPPURATION OF THE SUB-CÆCAL CONNECTIVE TISSUE.—M. Dupuytren entertained the belief that abscess in the right iliac fossa was frequently dependent upon inflammation of the iliac fascia. Copland repeats these observations of the *Leçons Orales* upon this subject. The older writers in general held this view. It was supposed either that an idiopathic inflammation occurred in the sub-cæcal tissue, or that inflammation of the cæcum was transmitted to this tissue by contiguity of structure; matter being formed, discharge of it took place either through an opening in the bowel or in the groin. Dr. Horner, then Demonstrator of Anatomy in the University of Pennsylvania, related in the *Philadelphia Journal of the Medical and Physical Sciences*, 1820, vol. i. p. 141, a case of lumbar abscess upon which he remarked as follows:—

"This case I believe to have been unusual, in regard to the communication established between the abscess, situated in the iliacus internus and psoas magnus muscle and the cavity of the colon, and it may, perhaps, prove serviceable, by calling in similar cases the attention of the practitioner to the cause of a series of symptoms which embarrassed exceedingly all the medical gentlemen who were consulted about it. It is also a good example of the species of lumbar abscess, which, in the language of Mr. Abernethy, proceeds from the phlegmonoid inflammation in the part. * * * * The case just recounted seems to me, from the primary symptoms, and from the alteration of structure in the parts affected, to have been one of phlegmonoid inflammation, and would have been cured by the treatment, had not the diseased action extended itself through the parietes of the colon," etc. etc.

That Dr. Horner misapprehended the facts which he had observed, is probable from an examination of some circumstances in the history of the case. "In consequence of some injury or strain received in the prosecution of his business, the patient felt a severe pain arise in the lumbar and iliac regions," &c. Compare this history with that of the case reported by Asst. Surgeon Sly (see *ante*) and the close analogy between them will appear evident. It is probable, indeed, in all of the cases, that disease of the cæcum or appendix was precedent to the formation of matter in the iliac fascia. Dr. Burne, who criticized in his paper the views of MM. Dupuytren, Menière, and others upon this point, takes, as we have shown, a somewhat too narrow view of the subject, in referring the origin of the formation of matter alone to ulceration and perforation of the appendix. Mr. Ferrall, on the other hand, was equally partial in his views in referring all iliac abscesses to disease of the cæcum. M. Dupuytren was, undoubtedly, in error in ascribing so much importance to inflammation and suppuration of the sub-cæcal connective tissue, which plays, we now know, a very secondary part in the phenomena of abscess of the right iliac fossa.

COURSE OF THE ABSCESS.—I have collected nineteen cases in which the precise point the abscess discharged itself was unequivocally stated. In ten of these the pus descended along the sheath of the psoas muscle, and

presented itself underneath Poupart's ligament (cases of Horner,[1] Ticknor,[2] Buck,[3] Copland,[4] Habershon,[5] Ferrall, Howell,[6] and those given in this paper); in three into the bowel; in three both into the bowel and externally; in one into both iliac regions (Dr. Fries' case); in one opening into the bowel and also into the iliac artery (Dr. Barlow's case);[7] one into the lumbar region, posteriorly.

Dupuytren regarded the opening into the bowel as the safest termination of an iliac abscess, and the opening on the surface of the body as almost always fatal. The first opinion is probably correct; but the last is at variance with the facts herein presented. One-half of the cases in which the abscess opened externally terminated in recovery. I do not find a well authenticated case of recovery from ulceration and perforation of the appendix. Dr. Burne reports one case of recovery in six cases of perforation of the appendix, but he does not state the ground of his conclusion. It will be remembered that Dr. Burne does not believe in perforative ulceration of the cæcum, but considers that abscesses arising from perforation of the appendix frequently discharge themselves through the cæcum. It is obviously difficult to arrive at a correct conclusion on account of the impossibility of verifying the diagnosis in a successful case.

The pointing of the abscess is sometimes attended with phenomena well calculated to mislead. Instead of the "doughy" sensation of parts containing pus, the integument is distended with gas and is tympanitic. This condition of things existed in Dr. Buck's case, giving rise to the question, "whether the gut had not made its way to the surface." "This portion of the swelling was resonant, and on handling it, you could readily distinguish that it contained air." The very same remark could be correctly applied to the most prominent part of the swelling in Mrs. M——'s case, already detailed. A somewhat ludicrous description has been given me by a medical friend of this city, of his sensations of terror on opening what I presume to have been a similar form of abscess, when a quantity of gas escaping he supposed his lancet had punctured the intestine.

PROGNOSIS.—The conclusions arrived at after a survey of the whole ground may be summarily stated as follows:—

The prognosis is favourable if the abscess have been produced by a foreign body which has passed by ulceration through that part of the cæcum not covered by peritoneum.

The prognosis is favourable in one-half of the cases of perforation of posterior part of the cæcum by the perforating ulcer.

[1] Philadelphia Journal of the Medical and Physical Sciences, vol. i. p. 141.
[2] American Journal of the Medical Sciences, vol. xvi. p. 513.
[3] New York Medical Journal, vol. ii. p. 38.
[4] Medical Dictionary, vol. i. p. 332.
[5] Diseases of the Alimentary Canal, chap. viii., Phila. edition.
[6] Lancet, 1845, vol. i. p. 648.
[7] Ibid., 1853, vol. i. p. 340.

The prognosis is more favourable when the sub-cæcal abscess discharges itself through the bowel.

The prognosis is unfavourable, if the perforation takes place through that part of the cæcum with a peritoneal covering, or through the appendix.

In thirty-one cases of perforation of the cæcum and appendix there were eleven recoveries, seventeen deaths from general peritonitis, one death from hemorrhage (abscess opened into iliac artery), two deaths from exhaustion.

According to Dupuytren, the prognosis is not, in general, unfavourable. Of sixteen cases of abscess in the right iliac fossa observed by him, one only died.

DIAGNOSIS.—This affection may appear to be sufficiently characteristic to prevent mistakes in diagnosis; nevertheless some very curious mistakes are on record. Dupuytren remarks that he has frequently witnessed gross errors of diagnosis, especially in confounding psoas abscess with abscess of the iliac fossa. Mr. Cæsar Hawkins, in a clinical lecture (*London Medical Gazette*, Sept. 29, 1832, in *American Journ. of the Med. Sciences*, vol. xi. p. 503), thus alludes to the difficulty in many of these cases in making a correct diagnosis: "In short, the causes of these abscesses may be so numerous, and their course so varied and extraordinary, as sometimes to render them very puzzling and complicated." He gives a case in which an abscess following caries of the sacrum opened into the bowel and also externally, in the right iliac region, and feces were discharged through the external wound. More recently, Mr. Coulson (*London Lancet*, vol. ii., 1856, p. 518) has also discoursed upon the difficulty of determining the origin of abscesses in the neighbourhood of the vertebræ.

M. Brichetau (*Archives Générales*, 1838) has related a case of abscess in the iliac fossa which was at first presumed to be neuralgia of the hip. In the same periodical a case is related in the practice of M. Berard, which had been long mistaken for coxalgia. This will not appear extraordinary when it is remembered that a severe pain in the hip may be one of the earliest and most pronounced symptoms as in the case of Mrs. M——.

It would not be profitable to occupy much space with a minute detail of the symptoms by which the form of abscess under consideration may be distinguished from other affections. It will suffice to enumerate the diseases with which it may be readily confounded: 1, psoas abscess; 2, abscess connected with caries of the pelvic bones; 3, pelvic cellulitis or pelvic abscess; 4, abscess in the abdominal wall; 5, disease of the hip-joint.

TREATMENT.—Excluding the heroical remedy, "general bleeding," from the category, we cannot improve much on the practice of Dupuytren: local and general bleeding; fomentations, poultices, baths, lavements, and laxative drinks. In my experience nature is very competent to manage the case. In perforation of the cæcum involving the peritoneum, or of the appendix, a fatal result may be anticipated, do what we will, unless adhesions localize the inflammation, when an abscess may form in the right iliac region—a

rare result, but the chances of which we must not diminish by too heroic treatment.

In a large number of cases, as we have seen, either a foreign body or a perforating ulcer opens the posterior part of the bowel, and the abscess forms in the sub-cæcal tissue. If left to itself, the abscess tends outward, and in a majority of cases recovery ensues. In addition to the simple measures of Dupuytren, we have to give the patient what is called "the supporting treatment." I think it not well to make haste to use the knife. On the other hand, Dr. Buck, who is high authority, says: "The proper treatment, which has been successful in my hands, is this: upon ascertaining the existence of the abscess, I, without waiting for fluctuation to establish itself, make an outlet for the matter below the outer half of Poupart's ligament, and parallel with it, first through the integument, exposing the fascia of the thigh. This fascia being divided, you pass under the ligament, and get behind the iliac fascia. The incision thus made is to be kept open by a plug of lint, renewed every twenty-four hours." This practice, I may be permitted to observe, is not always proper, since a discharge of the abscess through the opening in the bowel is the most favourable termination. Bursting of the abscess into the peritoneum is an accident not to be apprehended in these cases.

ART. IV.—*On the Inhalation of Atomized Medicated Liquids and its Value in the Treatment of Diseases of the Respiratory Organs.* By JOHN HART, M. D., Boston, Mass.

IN the spring of 1865 my attention was attracted by the reports of some cases of diseases of the respiratory organs which had been treated successfully by the new mode of inhaling atomized medicated liquids, and I therefore determined to investigate the subject carefully, and test its value by experience. As a suitable apparatus could not then be obtained, I constructed one myself. After having treated several patients with good results, I exhibited my apparatus at the meeting of the Suffolk District Medical Society, September 30, 1865, and presented the results of this treatment as obtained from the numerous reports of eminent German practitioners. Since then I have resorted to this treatment in a large number of cases with satisfactory results.

Inhalations were recommended in the treatment of diseases of the respiratory organs in the early periods of medical science. Aretæus, Galen, Plinius, Aëtius, Dioscorides, and the Arabians advocated inhalations of vapours and sea-air. Subsequently various gases and vapours, chlorine, iodine, tar, turpentine, etc., were recommended for inhalations; but the